

## Dilated Eye Examinations for People with Diabetes – Wherein Lies the Truth?

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**Introduction.** According to the Centers for Disease Control and Prevention<sup>1</sup> (CDC), diabetes is the leading cause of blindness in the United States. Diabetic retinopathy is a highly specific vascular complication of both type 1 and type 2 diabetes. Two large clinical trials<sup>2,3</sup> provided strong support for the therapeutic benefit of photocoagulation surgery in people with diabetic retinopathy and strong motivation for the development of recommendations for diabetic retinopathy screening. The American Diabetes Association<sup>4</sup> recommends that, for people with established diabetes of both types, dilated eye examinations should be “repeated annually by an ophthalmologist or optometrist who is knowledgeable and experienced in diagnosing the presence of diabetic retinopathy and is aware of its management.” Healthy People 2010,<sup>5</sup> a nationwide health promotion and disease prevention agenda, has adopted as one of its goals to “increase the proportion of adults with diabetes who have an annual dilated eye examination.” This goal has likewise been adopted by the Division of Diabetes Translation, CDC, and translated to an indicator of progress for all state and territorial Diabetes Prevention and Control Programs (DPCPs).

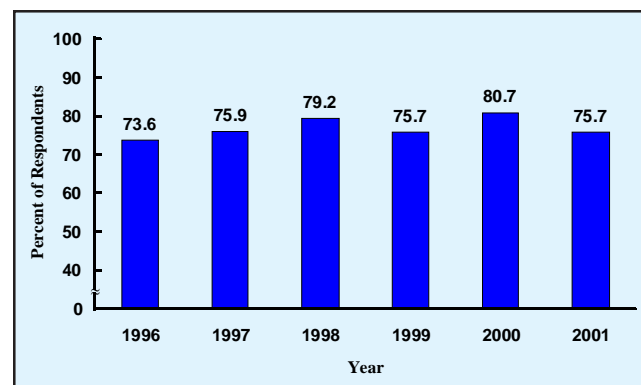
In Rhode Island, highly discrepant estimates of this indicator have recently been published using the Rhode Island Behavioral Risk Factor Survey (RI-BRFS) and the Rhode Island Commercial Health Plans Performance Report.<sup>6</sup> This article describes those estimates, examines reasons for the discrepancy, and discusses the programmatic implications of this for the Rhode Island Diabetes Prevention and Control Program (RI-DPCP).

**Methods.** The RI-BRFS is a CDC-funded, statewide telephone survey of the noninstitutionalized, civilian population 18 years of age and over that is conducted annually in Rhode Island, as it is in other states. Respondents with nongestational diabetes are identified by a positive response to the question, “Have you ever been told by a doctor that you have diabetes?” and, if the respondent is female, by a negative response to the question, “Was this only when you were pregnant?” Respondents with self-reported diabetes are then asked, “When was the last time you had an eye exam in which the pupils were dilated?”

The 2001 Rhode Island Commercial Health Plans Performance Report (the Report) analyzes data from commercial health plans certified to operate in Rhode Island. Medicare and Medicaid Plans are analyzed in a companion publication. In 2000, approximately 480,000 Rhode Islanders were covered by these commercial plans, 58,000 by Medicare plans, and 98,000 by Medicaid plans. The Report examines health plans with 10,000 or more Rhode Island members. The Report contains Health Plan Employer Data and Information Set (HEDIS) measures that examine the clinical quality of care provided within health plans. People with diabetes are defined by their use of pharmacy and claims/encounter data during the measurement year or the year prior to the measurement year. A retinal examination is defined as one conducted by an optometrist or

ophthalmologist as documented through either administrative data or medical record review. HMOs are also allowed to count retinal exams performed in the year prior to the measurement year if a member meets certain other criteria. The HEDIS measure for diabetes care eye exam is the percentage of members with diabetes (type 1 and type 2) age 18-75 who were continuously enrolled during the measurement year, and who had a retinal eye exam performed.

**Results.** Figure 1 shows the percent of RI-BRFS respondents with diabetes who reported having received a dilated eye examination in the year prior to interview from 1996 through 2001. Although some variability is evident year to year, the percent of respondents with diabetes who report having received a dilated eye examination in the year prior to interview is consistently higher than 70%.



**Figure 1.** Percent of Respondents with Diabetes Who Report Having Received a Dilated Eye Examination in the 12 Months Prior to Interview, RI-BRFS 1996-2001

Table 1 compares the percent of people with diabetes estimated to have received a dilated eye exam in 1999 and 2000 using data from the RI-BRFS and the Report. Estimates using the RI-BRFS are consistently much higher than those of all three types of health plans. Among health plans, estimates among Medicare Plans are higher than those of Commercial Plans and Medicaid Plans.

**Table 1**  
Percent of People with Diabetes and Dilated Eye Exams,  
RI-BRFS and RI Health Plans' Performance Reports,  
1999-2000

Source of Data	1999	2000
RI Behavioral Risk Factor Survey	75.7%	80.7%
Commercial Plans' Performance Reports	48.2%	46.1%
Medicare Plans' Performance Reports	67.6%	72.1%
Medicaid Plans' Performance Reports	38.5%	46.3%

**Discussion.** There are a number of possible explanations for discrepancies observed in reporting dilated eye examinations. Target

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populations for each of these sources may differ with respect to important demographic factors. For example, the RI-BRFS excludes people without telephones, activated members of the armed forces, and Rhode Islanders under 18 years of age. Responses to the diabetes questions are weighted and represent approximately 45,000 people with diabetes. Target populations for the health plans are people enrolled in the plans. As with the RI-BRFS, HEDIS measures reported by health plans do not include people less than 18 years of age, but unlike the RI-BRFS they exclude people over the age of 75 years, and the prevalence of diabetes is high among elderly persons. The penetration of telephones in Rhode Island is high and there is little reason to suspect that this factor alone may account for differences in receipt of dilated eye exams. HEDIS measures include people with diabetes who live in institutions, and although this includes people in nursing homes, it is likely to be a small proportion of all people with diabetes enrolled in the plans.

Regardless of the target population for these measures, the accuracy with which the RI-BRFS and HEDIS measures represent their target populations must also be considered. Declining response rates on the RI-BRFS in the recent years may mean that final estimates are less than representative of the target population. This is not an issue for health plans, which collect comprehensive data on all enrollees.

The manner in which diabetes and dilated eye examination are determined varies significantly between the RI-BRFS and the health plans' HEDIS measures. In the former, the diagnosis of diabetes and the receipt of a dilated eye examination depend upon self-report. The diagnosis of diabetes by HEDIS measures rests on clearly defined clinical and pharmacological criteria that have been recorded at the point of encounter between a person with diabetes and the health care system, and both encounters and pharmacological interventions are tightly linked to reimbursement for the provider. HEDIS measures then, are more likely to accurately reflect the experience of people with a true diagnosis of diabetes.

Similarly, because receipt of a dilated eye exam on the RI-BRFS is determined by self-report, respondents may fail to distinguish between routine eye examinations and dilated eye examinations, whereas HEDIS measures are based on reimbursed services. Respondents to the RI-BRFS may inaccurately recall the timing of their last dilated eye examination as being more recent than it actually was, and this may lead to overestimating the proportion of respondents who report having received an eye examination in the 12 months preceding the interview. The fact that health plans are allowed, under certain limited circumstances, to include eye exams received in the past two years would, if anything, tend to overestimate, rather than underestimate, the proportion of people with diabetes who received eye exams as measured by these sources.

It appears that HEDIS measures may more accurately reflect the general experience of Rhode Islanders with diabetes in spite of the fact that these measures are based solely on people who are members of a health plan. On the other hand, one of the overarching goals of Healthy People 2010 is to eliminate health disparities. HEDIS measures are presented as aggregate estimates that are not broken out by age, race or ethnicity. Health disparities by age, race and ethnicity are well documented among people with diabetes, and programmatic efforts are tailored to reduce the burden of diabetes among high-risk groups. Therefore, estimates derived from the RI-BRFS may be more useful than HEDIS measures to characterize the experience of selected demographic groups of people with diabetes and to measure the effects of interventions targeted specifically to these groups.

Faced with discrepancies regarding the proportion of people who have received dilated eye examinations, what is the Rhode Island Diabetes Prevention and Control Plan to do? The RI-DPCP has concluded that the HEDIS measure for eye examinations should be used as the basis for rededicating efforts to improve coverage of eye examinations among people with diabetes. In light of this, in 2003 the RI-DPCP will initiate a linguistically and culturally-based multimedia approach to raise awareness of the importance of an annual dilated eye examination for persons with diabetes and their health care providers. This is being undertaken in collaboration with the State's major third party insurers, diabetes educators, health centers, community agencies and health care providers. At the same time, the RI-DPCP will continue to use the RI-BRFS as the basis for initiatives designed to reduce health disparities.

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